10/18/02

Documentation of Environmental Indicator Determination

Part 111/RCRA Corrective Action

PERFECT CIRCLE DIV OF DANA CORP
MID 980 499 735

Environmental Indicator (EI) RCRIS Code (CA 725)
Current Human Exposures Under Control

Background

Definition of Environmental Indicators

EIs are measures being used by the federal Resource Conservation and Recovery Act of 1976 (RCRA) Corrective Action program to go beyond programmatic activity measures to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for ecological receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive Current Human Exposures Under Control EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land and groundwater use conditions (for all contamination subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While final remedies remain the long-term objective of the Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451)/RCRA corrective action program the EIs are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993 (GPRA). The Current Human Exposures Under Control EIs are for reasonably expected human exposures under current land and groundwater use conditions ONLY, and do not consider potential future land or groundwater use conditions or ecological receptors. The RCRA corrective action program's overall mission to protect human health and the environment requires that final remedies address potential future human exposure scenarios, future land and groundwater uses, and ecological receptors.

Duration/Applicability of EI Determinations

EI determinations status codes should remain in the RCRA Info national database ONLY as long as they remain true.

Environmental Indicator (EI) RCRIS Code (CA 725)
Current Human Exposures Under Control

1. Has all available relevant/significant information on known and reasonably suspected releases to groundwater, soil, surface water/sediments, and air, subject to RCRA corrective action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

   YES — If yes, continue with #2 below; If no, re-evaluate existing data; if data are not available, skip to #6 and enter "IN" (more information needed) status code.

2. Are groundwater, soil, surface water/sediments, or air media known or reasonably suspected to be "contaminated"(1) above the Part 201, Environmental Remediation, of Act 451 cleanup criteria from releases subject to RCRA corrective action, anywhere at, or from, the facility?

		Key Contaminants:
Groundwater	YES	Soil and groundwater contaminated with Trichloroethylene (TCE) and Perchlorethylene (PCE).
Indoor Air(2):	YES	
Surface Soil:	YES	
Surface Water	NA	
Sediment:	NA	
Subsurf Soil:	YES	
Outdoor Air:	NO	

   YES — If no (for all media), skip to #6, and enter "NC" status code after providing or citing appropriate levels, and referencing sufficient supporting documentation demonstrating that these levels are not exceeded.

   If yes (for any media), continue after identifying key contaminants in each contaminated medium. Cite appropriate levels (or provide an explanation for the determination that the medium could pose an unacceptable risk), and reference supporting documentation in the Rationale and References box below.

   If unknown (for any media), skip to #6 and enter an "IN" status code.

3. Are there complete pathways between contamination and human receptors such that exposures can be reasonably expected under the current (land and groundwater use) conditions? If yes, enter one or more of the following receptors who may be affected by the completed pathway: Rs=Resident/ W=Worker/ D=Daycare/ C=Construction/ T=Trespasser/ Rc=Recreation/ F=Food; and clarify which pathways are complete for each corresponding receptor in the boxes below.

Environmental Indicator (EI) RCRIS Code (CA 725)
Current Human Exposures Under Control

Human Receptor:	workers	Complete Path:	IA, Subsurf Soil, GW, Surf Soil

If pathways are not complete for any contaminated media-receptor combination, skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium.

If pathways are complete for any contaminated media-human receptor combination, continue after providing supporting documentation in the Rationale and References box below.

If unknown for any contaminated media-human receptor combination, skip to #6 and enter an "IN" status code.

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be significant(3) (i.e., potentially unacceptable) because exposures can be reasonably expected to be:

   1) greater in magnitude (intensity, frequency, and/or duration) than assumed in the derivation of the acceptable levels used to identify the contamination; or

   2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable levels) could result in greater than acceptable risks?

   YES | If no (exposures cannot be reasonably expected to be significant (i.e., potentially unacceptable) for any complete exposure pathway), skip to #6 and enter a "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to contamination are not expected to be significant.

   If yes (exposures could be reasonably expected to be significant (i.e., potentially unacceptable) for any complete exposure pathway), continue after providing a description (of each potentially unacceptable exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to contamination are not expected to be significant.

   If unknown (for any complete pathway), skip to #6 and enter an "IN" status code.

Environmental Indicator (EI) RCRIS Code (CA 725)
Current Human Exposures Under Control

5. Can the significant exposures be shown to be within acceptable limits?

YES

If yes (all significant exposures have been shown to be within acceptable limits), continue and enter the "YE" status code after summarizing and referencing documentation justifying why all significant exposures to contamination are within acceptable limits (e.g., a site-specific human health risk assessment).

If no, (there are current exposures that can be reasonably expect to be unacceptable) continue and enter the "NO" status code after providing a description of each potentially unacceptable exposure.

If unknown (for any potentially unacceptable exposure), continue and enter an "IN" status code.

6. DEQ Staff: Enter the appropriate RCRAInfo status codes for the Current Human Exposures Under Control EI (event code CA 725), and obtain Supervisor (or appropriate manager) signature and date on the EI determination below (reference appropriate supporting documentation and attach a map of the facility).

YES

)/3/2002

YE = yes, Current Human Exposures under control has been verified. Based on a review of the information contained in this EI determination, it has been determined that Current Human Exposures are under control at the facility, under current and reasonably expected conditions. This determination will be reevaluated when the agency becomes aware of significant changes at the facility.

NC = No control measures are necessary at the facility, because there are no contaminants.

NO = Current Human Exposures are NOT under control.

IN = More information is needed to make a determination.

Environmental Indicator (EI) RCRIS Code (CA 725)
Current Human Exposures Under Control

Rationale and References

Concrete paving and building floors provide an effective exposure barrier for direct contact with contaminated soil and groundwater. While concentrations in soil beneath the manufacturing buildings exceed applicable industrial soil volatilization to indoor air criteria and soil gas criteria under Part 201 of Act 451, the buildings house manufacturing equipment that utilize TCE. Therefore, for purposes of acceptable exposures, the occupational safety and worker protection standards and requirements under OSHA and MIOSHA apply. Indoor air concentrations of TCE are below the OSHA and MIOSHA permissible exposure limit.

Environmental Indicator (EI) RCRIS Code (CA 725)
Current Human Exposures Under Control

Reference Location(s)

Reference May 15, 2002, August 9, 2002, and September 27, 2002 letters from RMT, Dana's consultant, to the DEQ, for additional detail from the company regarding human exposures. These and additional supporting documents are maintained in the DEQ, WHMD, Hazardous Waste and Radiological Protection Section, base, monitoring data, and corrective action files.

LEAD AGENCY: WMD

Completed by: Steve Sliver Signature: 10/16/02 Date: 10/16/02

HW Supervisor: Signature: Date: 10-18-02

EPA STAFF:

EPA Contact Phone:

EPA Contact e-mail:

EPA Program:

Enter In RCRAINFO!!!!!!!

Endnotes:

(1)"Contamination" and "Contaminated" describe media containing contaminants (in any form, NAPL and/or dissolved, vapor, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (for the media, that identify risks within the acceptable risk range).

(2) Recent evidence (from the Colorado Department of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look at the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

(3) If there is any question on whether the identified exposures are significant (i.e., potentially unacceptable) consult a human health risk assessment specialist with appropriate education, training, and experience.

9/3/02

Documentation of Environmental Indicator Determination
Part 111/RCRA Corrective Action

PERFECT CIRCLE DIV OF DANA CORP
MID 980 499 735

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

Background

Definition of Environmental Indicators

EIs are measures being used by the federal Resource Conservation and Recovery Act of 1976 (RCRA) corrective action program to go beyond programmatic activity measures to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for ecological receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive Migration of Contaminated Groundwater Under Control EI determination ("YE" status code) indicates that the migration of contaminated groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original area of contaminated groundwater.

Relationship of EI to Final Remedies

While final remedies remain the long-term objective of the Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451)/RCRA corrective action program the EIs are near-term objectives which are currently being used as program measures for the Government Performance and Results Act of 1993 (GPRA). The Migration of Contaminated Groundwater Under Control EI pertains ONLY to the physical migration of contaminated groundwater and contaminants within groundwater. Achieving this EI does not achieve other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, where practicable, contaminated groundwater to be suitable for designated current/future uses.

Duration/Applicability of EI Determinations

EI determinations status codes should remain in the RCRAInfo national database ONLY as long as they remain true.

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA corrective action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

   YES — If yes, continue with #2 below; If no, re-evaluate existing data; if data are not available, skip to #8 and enter "IN" (more information needed) status code.

2. Is groundwater known or reasonably suspected to be "contaminated"(1) above the Part 201, Environmental Remediation, of Act 451 cleanup criteria from releases subject to RCRA corrective action, anywhere at, or from, the facility?

   YES — If yes - continue. Identify key contaminants and cite appropriate "levels," and reference supporting documentation in the Rationale and References box below. If no - skip to #8 and enter an "NR" status code. Cite appropriate "levels," and reference supporting documentation to demonstrate groundwater is not contaminated in the Rationale and References box below. If unknown - skip to #8 and enter an "IN" status code.

3. Has the migration of contaminated groundwater stabilized (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"(2) as defined by the monitoring locations designated at the time of this determination)?

   YES — If yes - continue, and present or reference the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the existing area of groundwater contamination in the Rationale and References box below. If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the existing area of groundwater contamination) - skip to #8 and enter a "NO" status code, and provide an explanation in the Rationale and References box. If unknown - skip to #8 and enter an "IN" status code.

4. Does "contaminated" groundwater discharge into surface water bodies

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

NO — If yes - continue after identifying potentially affected surface water bodies in the Rationale and References box below. If no - skip to #7 (and enter a "YE" status code in #8, if #7=yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies in the Rationale and References box below. If unknown - skip to #8 and enter "IN" status code.

5. Is the discharge of contaminated groundwater into surface water likely to be insiginificant (i.e., the maximum concentration(3) of each contaminant discharging into surface water is less than the Part 201 groundwater/surface water interface (GSI) cleanup criteria, and there are no other conditions (e.g., the nature, and number, of dischargeing contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

NA — If yes, skip to #7 (and enter "YE" status code in #8 if #7=yes), after documenting: 1) the maximum known or reasonably suspected concentration of key contaminants discharged above the Part 201 GSI criteria, the Part 201 GSI criteria, and whether there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or ecosystem.

If no (the discharge of contaminated groundwater into surface water is potentially significant), continue after documenting: 1) the maximum known or reasonably suspected concentration of each contaminant discharge above its Part 201 GSI criteria, the Part 201 GSI criteria, and whether there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations greater than the Part 201 GSI criteria, the estimated total amount (mass in Kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination) and identify if there is evidence that the amount of discharging contaminants is increasing.

If unknown, skip to #8 and enter an "IN" status code.

6. Can the discharge of contaminated groundwater into surface water be shown to be currently acceptable (i.e., not cause impacts to surface water, sediments, or ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented(4))?

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

NA If yes, continue and either 1) identify the final remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and ecosystem), and reference supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) provide or reference an interim assessment(5), appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of trained specialists, including an ecologist) adequately protective of receiving surface water, sediments, and ecosystems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim assessment (where appropriate to help identify the impact associated with the discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to Part 201 criteria for surface water and sediments, as well as any other factors, such as effects on ecological receptors (e.g., via bioassays/benthic surveys or site-specific ecological risk assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
If no (the discharge of contaminated groundwater cannot be shown to be currently acceptable), skip to #8 and enter the "NO" status code, and document the currently unacceptable impacts to the surface water body, sediments, and/or ecosystems.
If unknown, skip to #8 and enter an "IN" status code.

7. Will groundwater monitoring/measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the existing area of contaminated groundwater?

YES If yes, continue and provide or cite documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the existing area of groundwater contamination. If no, enter a "NO" status code in #8. If unknown, enter an "IN" status code in #8.

8. DEQ Staff: Enter the appropriate RCRAInfo status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA 750), and obtain Supervisor (or appropriate manager) signature and date on the EI determination below (reference appropriate supporting documentation and attach a map of the facility).

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

YES

8/28/2002

YE = yes, migration of contaminated groundwater under control has been verified. Based on a review of the information contained in this EI determination, it has been determined that the migration of contaminated groundwater is under contol at the facility. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be reevaluated when the agency becomes aware of significant changes at the facility.

NR = No release to groundwater.

NO = Unacceptable migration of contaminated groundwater is observed or expected.

IN = More information is needed to make a determination.

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

Rationale and References

Groundwater contamination with TCE and PCE is controlled by pump and treat system that has been in operation since the 1980s. The system is monitored and working effectively. Downgradient monitoring wells have demonstrated for more than a year the attainment of applicable Part 201 drinking water protection criteria (annual 2001 groundwater monitoring report).

The DEQ approved a post-closure plan with corrective action provisions on May 30, 2002. The plan imposes groundwater monitoring requirements, operation and maintenance of the pump and treat system, and investigation and remediation of contaminant sources.

Location of Cited References:

Environmental Indicator (EI) RCRIS Code (CA 750)
Migration of Contaminated Groundwater Under Control

LEAD AGENCY: WMD

Completed by: Steve Sliver Jr Signature: S.M.S.

Date: 8-28-02

HW Supervisor: Kenneth Burda Signature: Kenneth Burda

Date: 9/3/02

EPA STAFF:

EPA Contact Phone:

EPA Contact e-mail:

EPA Program:

Enter In RCRAINFO

Endnotes:

(1)"Contamination" and "Contaminated" describe media containing contaminants (in any form, NAPL and/or dissolved, vapor, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

(2) "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and th the futher migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

(3) As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

(4) Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

(5) The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments, or ecosystems.